



1

SEQUENCE LISTING

<110> BLAKE, MILAN S.
BOGDAN JR., JOHN A.
NAZARIO-LARRIEU, JAVIER

<120> METHOD FOR THE PRODUCTION OF BACTERIAL TOXINS

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<140> 09/825,769

<141> 2001-04-04

<150> 60/194,478

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<170> PatentIn Ver. 2.1

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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1

gattgctgat

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<210> 2

<211> 10

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 2

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 3

atgagcaatc gccccatcta c

21

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<210> 4
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 4
 cactatttgg tcggtcgg

18

<210> 5
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 5
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 1 5 10 15

Gly Phe Gly

<210> 6
 <211> 403
 <212> PRT
 <213> Bordetella pertussis

<400> 6
 Met Ser Asn Arg Pro Ile Tyr Leu Asp Tyr Ser Ala Thr Thr Pro Val
 1 5 10 15

Asp Pro Ser Val Val Glu Lys Met Ile Pro Trp Leu Tyr Glu Ser Phe
 20 25 30

Gly Asn Pro Ala Ser Arg Ser His Arg Phe Gly Trp Glu Ala Glu Asp
 35 40 45

Ala Val Glu Lys Ala Arg Glu Glu Val Ala Lys Leu Val Asn Ala Asp
 50 55 60

Pro Arg Glu Ile Val Trp Thr Ser Gly Ala Thr Glu Ser Asp Asn Leu
 65 70 75 80

Ala Ile Lys Gly Ala Ala Asn Phe Tyr Ala Glu Arg Gly Lys His Ile
 85 90 95

Ile Thr Val Lys Thr Glu His Lys Ala Val Leu Asp Thr Cys Arg Glu
 100 105 110

Leu Glu Arg Gln Gly Phe Glu Val Thr Tyr Leu Asp Val Gln Asp Asp
 115 120 125

Gly Leu Leu Ser Leu Asp Ala Phe Lys Ala Ala Leu Arg Pro Asp Thr
 130 135 140
 Ile Leu Val Ser Val Met Met Val Asn Asn Glu Ile Gly Val Ile Gln
 145 150 155 160
 Asp Ile Ala Ala Leu Gly Glu Ile Cys Arg Glu Lys Gly Ile Ile Phe
 165 170 175
 His Val Asp Ala Ala Gln Ala Thr Gly Lys Val Glu Ile Asp Leu Gln
 180 185 190
 Lys Leu Lys Val Asp Leu Met Ser Phe Ser Ala His Lys Thr Tyr Gly
 195 200 205
 Pro Lys Gly Ile Gly Ala Leu Tyr Val Arg Arg Lys Pro Arg Val Arg
 210 215 220
 Ile Glu Ala Gln Met His Gly Gly Gly His Glu Arg Gly Phe Arg Ser
 225 230 235 240
 Gly Thr Leu Ala Thr His Gln Ile Val Gly Met Gly Glu Ala Phe Arg
 245 250 255
 Leu Ala Arg Glu Glu Met Gly Thr Glu Asn Glu Arg Val Arg Met Leu
 260 265 270
 Arg Asp Arg Leu Leu Ala Gly Leu Thr Gln Ile Glu Glu Val Tyr Val
 275 280 285
 Asn Gly Ser His Glu His Arg Val Pro His Asn Leu Asn Ile Ser Phe
 290 295 300
 Asn Tyr Val Glu Gly Glu Ser Leu Ile Met Ala Ile Lys Glu Leu Ala
 305 310 315 320
 Val Ser Ser Gly Ser Ala Cys Thr Ser Ala Ser Leu Glu Pro Ser Tyr
 325 330 335
 Val Leu Arg Ala Leu Gly Arg Asn Asp Glu Leu Ala His Ser Ser Ile
 340 345 350
 Arg Phe Thr Leu Gly Arg Phe Thr Thr Glu Gln Glu Ile Asp Phe Thr
 355 360 365
 Ile Glu Leu Ile Lys Ser Arg Val Gly Lys Leu Arg Asp Met Ser Pro
 370 375 380
 Leu Trp Glu Met Ala Gln Glu Gly Ile Asp Leu Asn Ser Val Gln Trp
 385 390 395 400
 Ala Ala His

<210> 7

<211> 403

<212> PRT

<213> Bordetella pertussis

<400> 7

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			20					25					30		
Gly	Asn	Pro	Ala	Ser	Arg	Ser	His	Arg	Phe	Gly	Trp	Glu	Ala	Glu	Asp
		35					40					45			
Ala	Val	Glu	Lys	Ala	Arg	Glu	Glu	Val	Ala	Lys	Leu	Val	Asn	Ala	Asp
	50					55					60				
Pro	Arg	Glu	Ile	Val	Trp	Thr	Ser	Gly	Ala	Thr	Glu	Ser	Asp	Asn	Leu
65					70					75					80
Ala	Ile	Lys	Gly	Ala	Ala	Asn	Phe	Tyr	Ala	Glu	Arg	Gly	Lys	His	Ile
				85					90					95	
Ile	Thr	Val	Lys	Thr	Glu	His	Lys	Ala	Val	Leu	Asp	Thr	Cys	Arg	Glu
			100					105					110		
Leu	Glu	Arg	Gln	Gly	Phe	Glu	Val	Thr	Tyr	Leu	Asp	Val	Gln	Asp	Asp
		115					120					125			
Gly	Leu	Leu	Ser	Leu	Asp	Ala	Phe	Lys	Ala	Ala	Leu	Arg	Pro	Asp	Thr
	130					135					140				
Ile	Leu	Val	Ser	Val	Met	Met	Val	Asn	Asn	Glu	Ile	Gly	Val	Ile	Gln
145					150					155					160
Asp	Ile	Ala	Ala	Leu	Gly	Glu	Ile	Cys	Arg	Glu	Lys	Gly	Ile	Ile	Phe
				165					170					175	
His	Val	Asp	Ala	Ala	Gln	Ala	Thr	Gly	Lys	Val	Glu	Ile	Asp	Leu	Gln
			180					185					190		
Lys	Leu	Lys	Val	Asp	Leu	Met	Ser	Phe	Ser	Ala	His	Lys	Thr	Tyr	Gly
		195					200					205			
Pro	Lys	Gly	Ile	Gly	Ala	Leu	Tyr	Val	Arg	Arg	Lys	Pro	Arg	Val	Arg
	210					215					220				
Ile	Glu	Ala	Gln	Met	His	Gly	Gly	Gly	His	Glu	Arg	Gly	Phe	Arg	Ser
225					230					235					240
Gly	Thr	Leu	Ala	Thr	His	Gln	Ile	Val	Gly	Met	Gly	Glu	Ala	Phe	Arg
				245					250					255	
Leu	Ala	Arg	Glu	Glu	Met	Gly	Thr	Glu	Asn	Glu	Arg	Val	Arg	Met	Leu
			260					265					270		
Arg	Asp	Arg	Leu	Leu	Ala	Gly	Leu	Thr	Gln	Ile	Glu	Glu	Val	Tyr	Val
		275					280					285			
Asn	Gly	Ser	His	Glu	His	Arg	Val	Pro	His	Asn	Leu	Asn	Ile	Ser	Phe
	290					295					300				

Asn Tyr Val Glu Gly Glu Ser Leu Ile Met Ala Ile Lys Glu Leu Ala
 305 310 315 320
 Val Ser Ser Gly Ser Ala Cys Thr Ser Ala Ser Leu Glu Pro Ser Tyr
 325 330 335
 Val Leu Arg Ala Leu Gly Arg Asn Asp Glu Leu Ala His Ser Ser Ile
 340 345 350
 Arg Phe Thr Leu Gly Arg Phe Thr Thr Glu Gln Glu Ile Asp Phe Thr
 355 360 365
 Ile Glu Leu Ile Lys Ser Arg Val Gly Lys Leu Arg Asp Met Ser Pro
 370 375 380
 Leu Trp Glu Met Ala Gln Glu Gly Ile Asp Leu Asn Ser Val Gln Trp
 385 390 395 400

Ala Ala His

<210> 8
 <211> 1212
 <212> DNA
 <213> Bordetella pertussis

<400> 8
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 gtcgagaaaa tgattccctg gttgtacgag agtttcggca atccggcctc gcgcagccac 120
 gcctttggct gggaagccga ggacgcggtc gagaaggccc gcgaggaagt tgccaagctg 180
 gtcaacgccg atccgcgcga gatcgtcttg acttccggcg ctaccgagtc ggacaacctg 240
 gccatcaagg gcgcggcgaa tttctacgcc gagcgcggca agcacatcat taccgtcaag 300
 accgaacaca aggcggtgct ggatacctgt cgggagctcg aacgccaggg ctttgaagtg 360
 acctacctgg atgtccagga cgatgggtctg ctacgcctcg atgcgttcaa ggctgcgctg 420
 cgcccgata ccatacctgg gtcggtgatg atgggtcaaca acgagatcgg cgtcatccag 480
 gacatcgccg cgctgggcga gatctgccgc gagaaggcca tcatcttcca cgtggacgcg 540
 gcccaggcca ccggcaaggt cgagatcgac ctgcagaagc tgaagggtga cctgatgtcg 600
 ttctcggcgc acaagacgta cggccccaag ggcacgcgcg cgctgtatgt gcggcgcaag 660
 ccgcgcgtgc gcacgcaggc gcagatgcac ggcgccggcc acgaacgggg cttccggtcg 720
 ggacgcgtgg ccacgcacca gatcgtcggc atgggcgagg cgttccgctt ggcgcgag 780
 gaaatgggca ccgagaacga gcgcgtgcgc atgctgcgcg accgcctgct ggccggcctg 840
 acgcagatcg aggaagtgt tgtgaacggc agcatggagc accgcgtgcc gcacaacctg 900
 aacatcagct tcaactatgt cgagggcgag tctctgatca tggcgatcaa ggagctggcc 960
 gtttccagcg gttcggcctg cacgtcggcc agcctggagc cgtcctatgt gctgcgcgcg 1020
 ctgggcccga acgacgagct ggcgcacagc tccatccgct ttaccctggg ccgcttcacg 1080
 accgaacagg aaatcgactt cacgatcgaa ctgatcaaga gtcgtgtcgg caagctgcgc 1140
 gatatgtcgc cgttgtggga aatggcccag gaaggcattg atctgaattc cgtgcagtgg 1200
 gccgcgcact ga 1212

<210> 9
 <211> 565
 <212> DNA
 <213> Bordetella pertussis

<400> 9
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gccttttggt gggaagccga ggacgcggtc gagaaggccc gcgaggaagt tgccaagctg 180
gtcaacgccg atccgcgcga gatcgtctgg acttccggcg ctaccgagtc ggacaacctg 240
gccatcaagg gcgcggcgaa tttctacgcc gagcgcggca agcacatcat taccgtcaag 300
accgaacaca aggcggtgct ggatacctgt cgggagctcg aacgccaggg ctttgaagtg 360
acctacctgg atgtccagga cgatggtctg ctcagcctcg atgcgttcaa ggctgcgctg 420
cgcccggata ccatacctggt gtcggtgatg atggtcaaca acgagatcgg cgtcatccag 480
gacatcgccg cgctgggcga gatctgccgc gagaagggca catcttcac gtggacgcgg 540
ccaagccaac ggcaaggctc agatc 565

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<210> 10

<211> 560

<212> DNA

<213> Bordetella pertussis

<220>

<221> modified_base

<222> (18)

<223> a, t, c, g, other or unknown

<220>

<221> modified_base

<222> (20)

<223> a, t, c, g, other or unknown

<220>

<221> modified_base

<222> (75)

<223> a, t, c, g, other or unknown

<220>

<221> modified_base

<222> (338)

<223> a, t, c, g, other or unknown

<400> 10

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tcgggtcggg cacnntggcc acgcaccaga tcgtcggcat gggcgaggcg ttccgcctgg 120
cgcgcgagga aatgggcacc gagaacgagc gcgtgcgcac gctgcgcgac cgctgctgg 180
ccggcctgac gcagatcgag gaagtgtatg tgaacggcag catggagcac cgcgtgccgc 240
acaacctgaa catcagcttc aactatgtcg agggcgagtc tctgatcatg gcgatcaagg 300
agctggccgt ttccagcggg tcggcctgca cgtcggcnag cctggagccg tcctatgtgc 360
tgcgcgcgct gggccgcaac gacgagctgg cgcacagctc catccgcttt accctggggc 420
gcttcacgac cgaacaggaa atcgacttca cgatcgaact gatcaagagt cgtgtcggca 480
agctgcgcga tatgtcgccg ttgtgggaaa tggcccagga aggcattgat ctgaattccg 540
tgcagtgggc cgcgactga 560

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<210> 11

<211> 425

<212> DNA

<213> Bordetella pertussis

<400> 11

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ctcgacctgc agaagctgaa ggtggacctg atgtcgttct cggcgcacaa gacgtacggc 60
cccaagggca tcggcgcgct gtatgtgcgg cgcaagccgc gcgtgcgcac cgaggcgag 120
atgcacggcg gcggccacga acggggcttc cggtcgggca cgctggccac gcaccagatc 180

```

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gtcggcatgg gcgaggcgtt ccgcctggcg cgcgaggaaa tgggcaccga gaacgagcgc 240
gtgcgcatgc tgcgcgaccg cctgctggcc ggctgacgc agatcgagga agtgtatgtg 300
aacggcagca tggagcaccg cgtgccgcac aacctgaaca tcagcttcaa ctatgtcgag 360
ggcgagtctc tgatcatggc gatcaaggag ctggccgttt ccagcggttc ggctgcacg 420
tcggc                                         425

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<210> 12

<211> 273

<212> DNA

<213> Bordetella pertussis

<220>

<221> modified_base

<222> (247)

<223> a, t, c, g, other or unknown

<400> 12

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gggcgagatc tgccgcgaga agggcatcat cttocacgtg gacgcggccc aggccaccgg 120
caaggtcgag atcgacctgc agaagctgaa ggtggacctg atgtcgttct cggcgcacaa 180
gacgtacggc cccaaggga tcggcgcgct gtatgtgcgg cgcaagccgc gcgtgcgcat 240
cgaggcntag atgcacggcg gcggccacga acg                                         273

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